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TSTNS-B

TEST SET, TELECOMMUNICATIONS

1. GENERAL. This procurement requires a transmission test set capable of performing measurements on voice, program, and data circuits.

2. CLASSIFICATION. Type II, Class 5, Style D, and Color R in accordance with MIL-T-28800 for shipboard applications. The convertible/rackmountable requirement is invoked.

3. OPERATIONAL REQUIREMENTS. The equipment shall be capable of measuring tone level, noise level, and frequency while simultaneously transmitting a tone level. The equipment shall perform within the minimum ranges, accuracies, and levels specified below.

3.1 Receiver frequency range. 40 Hz to 60 kHz.

3.1.1 Receiver frequency resolution. 1 Hz or less below 10 kHz, 10 Hz or less at 10 kHz and above.

3.1.2 Receiver frequency accuracy. {2 counts.

3.1.3 Receiver level range. -70 dBm to ±15 dBm for terminated or bridged signals.

3.1.4 Receiver level resolution. 0.1 dB or less.

3.1.5 Receiver ranging. The equipment shall be provided with autoranging capability for frequency and level measurements.

3.2 Transmitter frequency range. 40 Hz to 60 kHz. A 1,004 Hz ({1 count), single-tone frequency shall be provided.

3.2.1 Transmitter frequency resolution. 1 Hz or less below 10 kHz, 10 Hz or less at 10 kHz and above.

3.2.2 Transmitter frequency accuracy. {1 count.

3.2.3 Transmitter level range. -60 dBm to +10 dBm.

3.2.4 Transmitter level resolution. 0.1 dB.

3.2.5 Transmitter harmonic distortion. See Table I.

TABLE I. Total Harmonic Distortion (THD)

Frequency	THD (Maximum)
40 to 100 Hz	-40 dB
100 Hz to 4 kHz	-50 dB
4 to 20 kHz	-40 dB
20 to 60 kHz	-30 dB
1,004 Hz fixed	-60 dB

3.3 Noise level. The equipment shall measure input message circuit noise, noise-with-tone, and noise-to-ground. Accuracy: ±2.0 dB.

3.3.1 Message circuit noise measurement range. 0 dBrn to +85 dBrn.

3.3.2 Noise-with-tone measurement range. +10 dBrn to +85 dBrn.

3.3.3 Noise-to-ground measurement range. +50 dBrn to +125 dBrn.

3.3.4 Noise level resolution. 1 dB.

3.4 Filters. C-message, program, 3 kHz, and 15 kHz flat.

3.4.1 Notch filter. The notch filter shall provide at least 50 dB attenuation from 995 Hz to 1,025 Hz. -3 dB bandwidth: 862 Hz to 1,182 Hz.

3.5 Inputs and outputs. Two-wire and four-wire balanced circuit. Input protection: 200 Vdc.

3.5.1 Impedance. Selectable input and output: 135, 600, and 900 ohms.

3.5.2 Bridging loss. 0.2 dB maximum.

3.5.3 Return loss. 20 dB or greater for all impedances.

3.5.4 Connections. Audio jack, female banana type input and output connectors, and clip-on dial terminals for connecting a lineman's handset.

3.6. Visual. Digital readouts for input and output frequencies and levels shall be provided.

3.7 Audio. A built-in speaker for received or transmitted signals with volume control to vary speaker output level shall be provided.

4. GENERAL REQUIREMENTS.

4.1 Power source. MIL-T-28800 nominal and dc internal power source requirements are invoked as detailed below.

4.1.1 Nominal power source. Operation at 400 Hz is not required. Maximum power consum ption: 20W.

4.1.2 DC internal power source. Internal batteries and charger are required. Minimum operating time shall be 4 hours following a maximum recharge time of 12 hours.

4.2 Weight. 20 kg (44 lb) maximum.

4.3 Lithium batteries. Per MIL-T-28800, lithium batteries are prohibited without prior authorization. A request for approval for the use of lithium batteries, including those encapsulated in integrated circuits, shall be submitted to the procuring activity at the time of submission of proposals. Approval shall apply only to the specific model proposed.